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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/830,879	05/02/2001	Masashi Ueda	109426	5332

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OLIFF & BERRIDGE, PLC
P.O. BOX 19928
ALEXANDRIA, VA 22320

EXAMINER

HASSANZADEH, PARVIZ

ART UNIT PAPER NUMBER

1763

DATE MAILED: 04/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/830,879

Applicant(s)

UEDA ET AL.

Examiner

Parviz Hassanzadeh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 8-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group I, Species III (drawn to Figs. 3 and 4) in Paper No. 12/13/02 is acknowledged. The traversal is on the ground(s) that the apparatus and the method do not lack the same or corresponding special technical feature; the species can not be distinguished from each other; and there is no serious burden on the Examiner to search and examine the entire application. This is not found persuasive because as cited in paper No. 9, the method requires a total length of the electrode being a natural number times of a half of an excitation wavelength rather than being substantially equal to an excitation wavelength; the distinction between the Species have been detailed in the paper No. 9 very clearly and supported by different special technical features shown in the corresponding drawings; and finally the search and examination of the entire application are not coextensive as evidence by their different classification and different filed of search.

The requirement is still deemed proper and is therefore made FINAL.

Claims 8-18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Species and method, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 10.

It is noted that claims 11-14 belong to non-elected species I and II as cited in paper No. 9. It is further noted that claim 10 depends on non-elected claims 8 and 9 (species II) and are withdrawn from further consideration.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

The term "total length of electrode is substantially equal to an excitation wavelength" in claim 1 is a relative term which renders the claim indefinite. The term "excitation wavelength" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The excitation wavelength depend on the selected frequency of the RF power source and can be variably selected while the length of an electrode is a fixed value.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leung (US Patent No. 5,558,718) in view of Nawata et al (JP 08-299785-A).

Leung teaches a plasma processing apparatus (Fig. 2C) including an electrode 10 coupled to an RF source for generating a pulse plasma and thus reduce overheating the object to be processed (column 4, line 60 through column 5, line 32, and abstract).

Leung fail to teach one end of the electrode being grounded.

Nawata et al teach a plasma processing apparatus including a plurality of electrodes (Figs. 1, 2) coupled to a plurality of RF power sources, wherein the end part of electrode are grounded.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to implement the electrode grounding as taught by Nawata et al in the apparatus of Leung as an art recognized equivalent means of applying an RF to an electrode for forming plasma. See MPEP 2144.06, Art Recognized Equivalent for the Same Purpose, Substituting Equivalents Known for the Same Purpose (*in re Fout*, 675 F.2d 297, 213 USPQ 532 (CCPA 1982)).

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinoshita et al (US Patent No. 5,795,452) in view of Leung (US Patent No. 5,558,718) and Nawata et al (JP 08-299785-A).

Kinoshita et al teach a plasma processing apparatus (Fig. 4) of an internal electrode comprising: a plurality of electrodes 21, 22 arranged to form a stratified structure comprising a

plurality of layers within a vacuum processing chamber 1, a plurality of film depositing regions produced using a space between the electrodes 21, 22 for processing a plurality of substrates 3 (column 7, line 43 through column 8, line 12).

Kinoshita et al fail to teach the electrode being a line-shaped member having a node at a central portion of the electrode.

Leung teaches a plasma processing apparatus (Fig. 2C) including an electrode 10 coupled to an RF source for generating a pulse plasma and thus reduce overheating the object to be processed (column 4, line 60 through column 5, line 32, and abstract).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to implement the plasma generating source as taught by Leung in the apparatus of Kinoshita et al in order to form plasma without overheating the object to be processed.

Kinoshita et al in view of Leung fail to teach one end of the electrode being grounded.

Nawata et al teach a plasma processing apparatus including a plurality of electrodes (Figs. 1, 2) coupled to a plurality of RF power sources, wherein the end part of electrode are grounded.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to implement the electrode grounding as taught by Nawata et al in the apparatus of Kinoshita et al in view of Leung as an art recognized equivalent means of applying an RF to an electrode for forming plasma. See MPEP 2144.06, Art Recognized Equivalent for the Same Purpose, Substituting Equivalents Known for the Same Purpose (*in re Fout*, 675 F.2d 297, 213 USPQ 532 (CCPA 1982)).

Response to Arguments

Applicant's arguments filed 3/21/03 have been fully considered but they are not persuasive.

The Applicants assert that claims have been amended to obviate the rejection under 112, 2nd paragraph.

The Examiner argues that the length of the electrode has been defined with respect to wavelength of an excitation frequency. However the wavelength of the excitation frequency is a variable and thus render the length of the electrode indefinite.

The Applicants assert the plasma source 10 of Leung is not grounded and the teaching of grounding electrode as taught by Nawata et al does not render grounding the electrode of Leung obvious.

The Examiner argues that grounding an end of electrode as taught by Nawata et al is a common practice for returning signal applied to an electrode member to ground.

The Applicants assert that the electrode is arranged in the chamber and formed by bending a conductive wire or a conductive line-shaped member back at its central portion to make a substantially U-shape member (page 7).

The Examiner argues that independent claim 1 does not require a U-shape electrode formed by bending a line-shape electrode at its central portion. Further, independent claims 1 and 5 do not require the electrode being inside the chamber.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. *Ito (JP 2002-217119-A)* teaches a processing apparatus including a plurality of U-shaped electrode disposed inside a processing chamber for processing a plurality of substrate as shown in Figs. 1-8 wherein the RF source 7 is coupled to one end of each electrode.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Parviz Hassanzadeh whose telephone number is (703)308-2050. The examiner can normally be reached on Tuesday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (703)308-1633. The fax phone numbers for the

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organization where this application or proceeding is assigned are (703)872-9310 for regular communications and (703)872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

P. Hassanzadeh
Parviz Hassanzadeh
Examiner
Art Unit 1763

April 15, 2003